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PATENT APPLICATION

ATTORNEY DOCKET NO. 30011898-3US

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): WILCOCK, LAWRENCE et al.
Application No.: 10/058,052
Filing Date: January 29, 2002

Confirmation No.: 3663
Examiner: JORDANY NUNEZ
Group Art Unit: 2179

Title: **DISTINGUISHING REAL-WORLD SOUNDS FROM AUDIO USER INTERFACE SOUNDS**

Mail Stop Appeal Brief - Patents
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TRANSMITTAL OF REPLY BRIEF

Transmitted herewith is the Reply Brief with respect to the Examiner's Answer mailed on July 27, 2007.

This Reply Brief is being filed pursuant to 37 CFR 1.193(b) within two months of the date of the Examiner's Answer.

(Note: Extensions of time are not allowed under 37 CFR 1.136(a))

(Note: Failure to file a Reply Brief will result in dismissal of the Appeal as to the claims made subject to an expressly stated new ground rejection.)

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of	
Appellants: Lawrence Wilcock et al.	: Confirmation No. 3663
U.S. Patent Application No. 10/058,052	: Group Art Unit: 2179
Filed: January 29, 2002	: Examiner: Jordany NUNEZ
For: DISTINGUISHING REAL-WORLD SOUND FROM AUDIO USER INTERFACE SOUNDS	

Commissioner for Patents
P.O. Box 1450
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Attn: BOARD OF PATENT APPEALS AND INTERFERENCES

APPELLANTS' REPLY BRIEF (37 C.F.R. 1.192)

Appellants respond to the new arguments and issues raised in the Examiner's Answer as follows.

The Examiner's Answer on page 3, lines 4 and 5, inaccurately states that in column 3, lines 35-41 of Courneau et al. discloses the step of "while the user is able to hear real-world sounds from an environment where the user is located." In fact, column 3, lines 35-41 describes device 12 for managing "n" sources to be spatialized. This portion of the reference indicates device 12 is a computer through which bus 2 receives information elements concerning the characteristics of sources to be spatialized, as well as a criteria for the

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personalization of a user's choice and priority information, such as threats, warnings and important radio communications. In other words, column 3, lines 35-41, indicates spatialization module 1, of which device 12 is a part, derives synthesized signals, inter alia, threats and warnings, in response to signals from the n2 sources to be spatialized. As indicated at column 2, lines 13-18, spatialization module 1 has the role of making sound signals heard through stereophonic headphones in such a way that the sounds are perceived by a listener as if they come from a particular point in space. Courneau et al. goes on to state that spatialization module 1 is a sound source so that, for example, the pilot of an aircraft hears the voice of his co-pilot as if the voice is actually coming from behind the pilot. A sound alert of a missile attack is also spatially positioned by a spatialization module 1 at the point of arrival of a threat.

Based on the foregoing, the threats and warnings referred to in column 3, lines 35-41 are threats and warnings that the spatialization module 1 creates. There is nothing in column 3, lines 35-41 to indicate the user is able to hear sounds from an environment where the user is located while the user of spatialization module 1 has stereophonic headphones, mentioned in column 2, lines 16, on his head and covering his ears.

The original Brief adequately discusses the many issues concerning claim 1 stated on page 3 of the Examiner's Answer. The original Brief also provides arguments with regard to: (1) the limitations of claim 3, as set forth on page 4, lines 1-3 of the Examiner's Answer, (2) comments set forth in the Examiner's

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Answer on page 4 concerning claims 4, 15 and 24; see part D of the Argument Section of the original Brief.

The discussion of claim 12 on pages 5 and 6 of the Examiner's Answer fails to deal with the issues raised in Item E of the Argument section of the original Brief on pages 13-18. Page 6 of the Examiner's Answer repeats the statement that column 3, lines 35-45 of Courneau et al. discloses audio output devices that enable a user to hear real-world sounds from an environment where the user is located. The discussion of claim 1, supra, in this Reply Brief, inter alia, indicates why the Examiner is wrong in this regard.

Pages 18-20 in the Argument section of the original Brief deal with the discussion of claim 21 on pages 8 and 9 of the Examiner's Answer.

Appellants now deal with the "disagreements" set forth on pages 12-16 of the Examiner's Answer.

The penultimate paragraph on page 12 of the Examiner's Answer states it is incorrect to assume that Courneau et al. is primarily concerned with providing synthesized sounds to the headphones of a person in a very noisy environment. The specific environment Courneau et al. mentions is a fighter aircraft, which is certainly a noisy environment. While column 2, lines 3-12 indicates the Courneau "invention" is not limited to fighter aircraft, it does indicate that the Courneau et al. device can be implemented in other types of land-based or sea vehicles, as well as in fixed installations. There is nothing in column 2, lines 3-12, to indicate a person wearing the Courneau et al. headphones is able to hear real-world sounds.

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In addition, it appears very likely that stereophonic headphones of the type worn by users of the Courneau et al. device detect environmental sounds and cancel those environmental sounds from the sounds coupled to the stereophonic headphones so that a user of the stereophonic headphones that are responsive to spatialization module 1 can only hear the sounds coupled to the stereophonic headphones by spatialization module 1. Stereophonic headphones with noise canceling features worn by pilots and co-pilots of combat aircraft are obviously more sophisticated than those employed for commercial purposes.

Column 2, lines 13-16 clearly indicates the wearer of the stereophonic headphones responsive to spatialization of module 1 cannot hear real world sounds. If the pilot of the aircraft were able to hear real world sounds, he would be able to hear the voice of his co-pilot who is sitting directly behind him. Column 2, lines 19-21 clearly indicates the pilot of the aircraft cannot hear the voice of his co-pilot as if it were a real world sound, because the aircraft pilot hears the voice of his co-pilot through his headphones as if the co-pilot's voice is actually coming from behind the pilot. Such a close proximity between two people (the co-pilot of the combat aircraft sits directly behind the pilot) clearly indicates the pilot, in hearing the voice of the co-pilot through spatialization module 1, cannot hear real-world sounds.

The last paragraph on page 12 of the Examiner's Answer states Appellants do not define in the specification the meaning of the phrase "real-world sounds." The Examiner then goes on to admit that one of ordinary skill in the art would clearly understand that a real-world sound is a sound that occurs in

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the real-world. However, as set forth in the last sentence on page 4 in the Summary of the Claimed Subject Matter portion of the original Brief, which the Examiner agrees is accurate, the specification defines real world sounds as "sounds derived from real sound sources in the environment where the user is located and that differ from the synthesized sources." In other words, real world sounds are heard directly by the ears of a user of headphones, without being coupled to the ears of a user of headphones by way of processing devices as disclosed, e.g., by Fig. 1 of Appellants' disclosure or the spatialization module 1 of Courneau et al.

Page 12 of the Examiner's Answer then goes on to say, incorrectly, that synthesized sounds, such as sounds heard through stereophonic headphones, are real-world sounds. It is clear from Appellants' disclosure, as well as from Courneau et al., that synthesized sounds, such as sounds heard through stereophonic headphones, do not read on the requirements of the claims of the "real-world" sounds.

Column 2, lines 13-18 of Courneau et al. indicates spatialization module 1 makes the sound signals, tones, speech, alarms, etc., heard through the stereophonic headphones in such a way that they are perceived by the listener as if they came from a particular point of space. In other words, in Courneau et al., sounds coupled to the stereophonic headphones are synthesized. Appellants' disclosure goes into great detail as to how synthesized sound sources are created so they appear to emanate from different locations. It also distinguishes real-world sounds from the synthesized sounds.

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The Examiner's Answer then goes on to say that it is assumed that real-world sounds are not the same as synthesized sounds and that nothing in Courneau et al. will prevent a user from hearing non-synthesized sounds. The Examiner appears to be arguing that it is inherent from Courneau et al. that real-world sounds can be heard by a person wearing the Courneau et al. stereophonic headphones.

However, the Examiner, not the Appellants, is required to prove inherency. Appellants also note that inherency cannot be proven if a certain result or characteristic may occur or be present in the prior art. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ.2d 1955, 1956 (Fed. Cir. 1993); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). To establish inherency, the Examiner must provide extrinsic evidence to make it clear that the missing descriptive matter of the reference is necessarily present in the thing described in the reference and that it would be so recognized by persons of ordinary skill in the art. Inherency may not be established by possibilities or probabilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *In re Robertson*, 169 F.3d 743, 745, 49 USPQ.2d 1949, 1950-51 (Fed. Cir. 1999). In relying upon a theory of inherency, the Examiner must provide a basis in fact or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the prior art. *Ex parte Levy*, 17 USPQ.2d 1461, 1464 (BPAI 1990).

Appellants have provided rationale to indicate that the wearer of the headphones in the Courneau et al. device cannot hear real-world sounds

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superior. The environment of a fighter, combat aircraft is very noisy, such that real-world sounds cannot be heard and/or the user of the headphones is wearing headphones that cancel ambient noises. As indicated before, if the pilot can hear real-world sounds, he would be able to hear the voice of his co-pilot sitting directly behind him. Instead, the pilot relies on spatialization module 1 to hear the voice of his co-pilot.

Appellants respond to the comment in the last sentence on page 12 of the Examiner's Answer about sounds from a stereo or an alarm being classified as real-world, by noting such sounds would be classified as real-world if they are coupled directly to the ears of a user without going through the intermediary of the synthesizer of Appellants' disclosure or the spatialization module 1 of Courneau et al. or any other similar device that creates or modifies a sound so that the sound is coupled to the ears of a user by a medium other than the environment surrounding the user. In this regard, claim 1 indicates the user is able to hear real-world sounds from an environment where the user is located and that the synthesized sound sources represent items in an audio field from which synthesized sound sources related to the items appear to emanate. Claims 12 and 20 include similar limitations with regard to the definition of a synthesized sound source and further indicate the audio device is such as to permit a user to also hear real-world sounds from an environment where a user is located. Hence, the claim language provides a clear contrast between real-world and synthesized sounds.

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The allegation on page 13 of the Examiner's Answer that, in Courneau, personalization of the headphones is done "under user control," because the user control is a personalization of the headphones to obtain the most efficient possible localization of a virtual sound source is incorrect. As the Examiner admits, personalization is associated with the hearing characteristics of the ears of the subject who is wearing the headphones. The subject wearing the headphones has no control over the hearing characteristics of his ears during testing to determine the subject's hearing characteristics. Information concerning the hearing characteristics of the ears is determined from tests performed on the subject. As discussed, for example, by Courneau at column 3, lines 47-67, and column 5, line 1 and lines 24-33, the tests are performed in an anechoic chamber by using loud speakers and microphones. Column 1, lines 35-62, referred to in the Examiner's Answer, summarizes these operations in connection with estimating the transfer functions of the user's head. These operations are not performed "under user control" because the user is the subject of the test.

The discussion in the second paragraph on page 13 of the Examiner's Answer does not, in fact, discuss sound effects. Claim 3 requires the distinctive presentation of claim 1 to be a sound effect. There is no mention of sound effects in the second paragraph on page 13 of the Examiner's Answer. The Examiner points to no portion of Courneau et al. to support his position that the sound effect requirement of claim 3 is found in the reference.

The last paragraph of page 13 of the Examiner's Answer states that "one ordinarily would immediately recognize then that a frequency shifter is performed

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in order to spatialize a signal" [sic]. The Examiner has provided no rationale as to why the transfer functions referred to in column 5, lines 36-46 of Courneau perform a frequency shift on the signal coupled to the stereophonic headphones. The transfer functions are related to the acoustic characteristics of the head of the subject; they have nothing to do with frequency shifting a distinctive presentation of item-related sounds, as claim 4 requires.

Pages 13 and 14 of the Examiner's Answer state Appellants admit the pilot in Courneau is able to hear threats and warnings. Appellants only admit the pilot is able to hear threats and warnings coupled to the pilot by way of spatialization module 1. There is no admission by Appellants that the pilot is able to hear threats and warnings as real-world sounds. The sentence bridging pages 13 and 14 of the Examiner's Answer admits radiophonic communications as well as various alarms and on-board communications are reconstructed by spatialization module 1 of Courneau et al. The Examiner's Answer admits an alarm is a spatialized. The statement that the alarm the pilot readily hears without the headphones that is further spatialized loudly through the headphones could cause the pilot hearing damage has no foundation from the reference.

The paragraph in the middle of page 14 of the Examiner's Answer has no basis from the Courneau et al. reference. There is no indication in Courneau et al. that the user of the headphones is able to hear any real-world sounds. There is no basis in Courneau et al. that a user is able to hear sounds from an environment where a user is located, as alleged in the last sentence of the only full paragraph on page 14 of the Examiner's Answer. As discussed, supra, in this

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Brief, as well as in the original Brief, if the pilot is unable to hear the co-pilot who is directly behind him, he is unable to hear any real world sounds. The Examiner ignores the possibility of the noise level being so high the pilot cannot hear anything and the possibility of the stereophonic headphones completely canceling ambient noise. The Examiner has not met the requirements for inherency, one of which is to require the reference to necessarily include the claimed features.

In the paragraph bridging paragraphs 14 and 15 of the Examiner's Answer, the Examiner, for the first time, attempts to indicate where Courneau et al. discloses the means-plus-function requirements of claim 12. However, in fact, the Examiner does not point to portions of Courneau et. al. that include the means-plus-function limitations, but states hardware and software would be needed to perform the various operations. However, claim 12 is rejected on 35 U.S.C. 102. The Examiner has provided no secondary reference to support his position regarding the means set forth in claim 12.

Appellants' have satisfied the requirements to particularly point out the portions of the application relied on for the means-plus-function limitations of claim 12. The comment in the last few sentences of the paragraph at the top of page 15 of the Examiner's Answer, that the embodiments of the specification are simply to facilitate a clear description of the apparatus, ignores the fact that the specification does provide specific structure. It is not necessary for the specification to disclose all possible means, but merely a single means for a means-plus-function limitation.

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The allegation in the first full paragraph on page 15 of the Examiner's Answer ignores the fact that all sounds are supplied to the user of the Courneau et al. device through spatialization module 1. Clearly, Courneau et al. teaches that the pilot hears the co-pilot only through spatialization module 1. Why else would Courneau et al., at column 2, lines 19-20, state: "Thus, for example, the pilot of an aircraft hears the voice of his co-pilot as if it is actually coming from behind him (emphasis added)." The statement is made in connection with the operation of spatialization module 1 that is making a sound signal through stereophonic headphones in such a way that they are perceived by the listeners as if they come from a particular point of space; see column 2, lines 14-18.

The second full paragraph of page 15 of the Examiner's Answer, in replying to Appellants' argument on page 17, last paragraph, of the original Brief, concerning the means-plus-function requirements of claim 12, ignores the fact that the means-plus-function requirement of claim 12 reads on sound setter 84 of Appellants' disclosure. Sound setter 84 selectively applies, under user control, a distinctive presentation effect in the form of a sound effect. There is no consideration in the second full paragraph of page 15 of the Examiner's Answer of the "user control" requirement of claim 12.

The statement in the last sentence of the last full paragraph on page 15 of the Examiner's Answer that the subject who is wearing the Courneau et al. head phone assisted in distinguishing a fifth sound source as a real-world sound source from the synthesized sound source has no basis in the Courneau et al. disclosure. There is nothing in Courneau et al. to indicate that such a fifth sound

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source is actually heard by the user of the headphones. The implication from column 3, lines 29-31, is that a fifth sound source cannot be heard by the user of the Courneau device.

The paragraph bridging pages 15 and 16 of the Examiner's answer states that if Courneau et al. does not teach a particular feature, Courneau et al. may inherently teach the particular feature. This segment of the Answer ignores the fact that an inherency rejection requires a particular feature to be necessarily included in the reference relied on by the Examiner. It is up to the Examiner to prove that a user of the Courneau et al. headphones can hear real-world sounds, particularly since Courneau et al. indicates that is not the case. Further, it is up to the Examiner to prove that a user of the headphones in the noisy environment of a combat aircraft or the user of a head phone with voice canceling feature is able to hear real-world sounds. The Examiner states that Appellant must prove the existence of headphones canceling all of the user's environmental sounds. In fact, it is up to the Examiner to prove inherency and the ability of a pilot of a combat aircraft or other users of the Courneau system and stereophonic headphones to hear environmental sounds.

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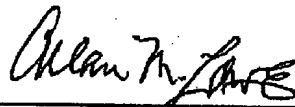
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Based on the foregoing, the reversal of the rejection is in order.

Respectfully submitted,

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